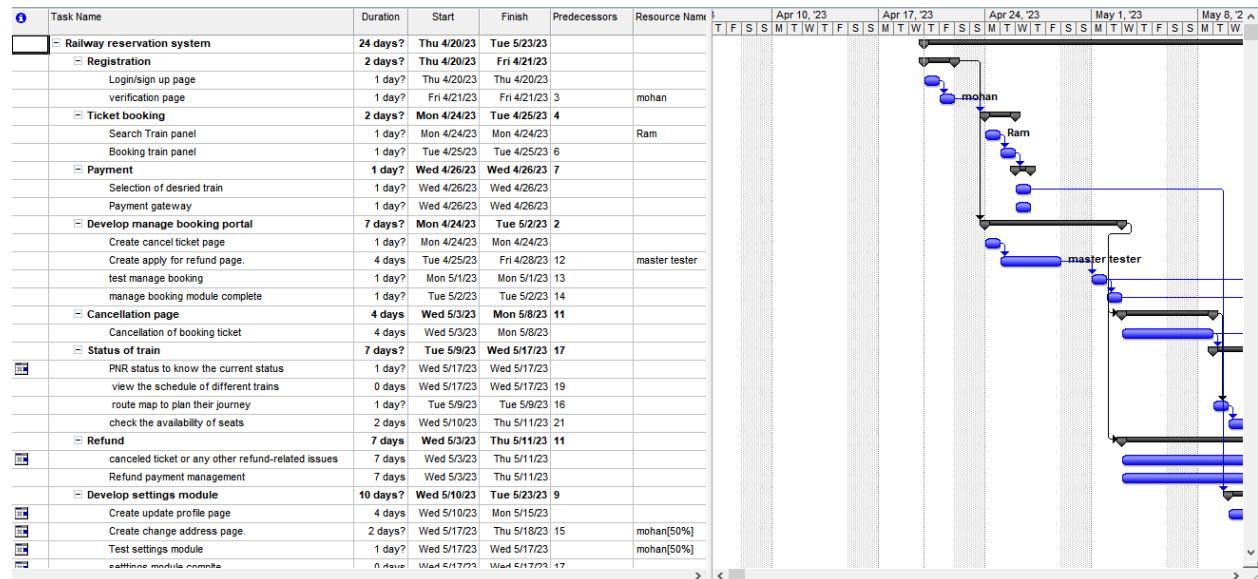


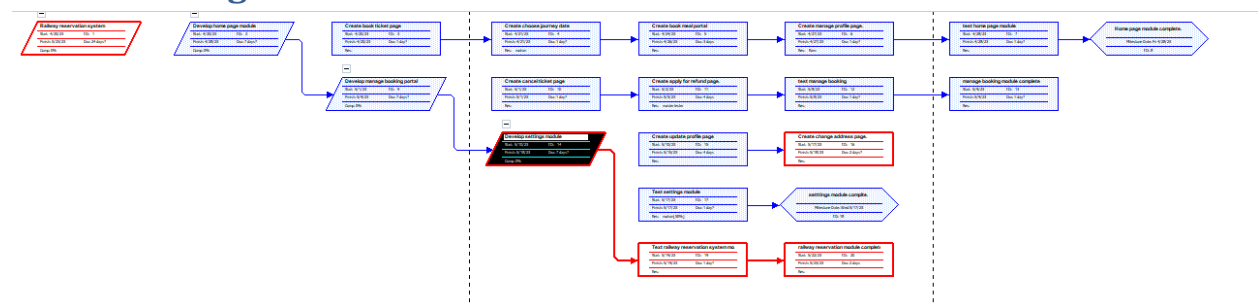
Q1) By taking 12 activities and resources for online railway system represent connection from gantt chart to resource sheet, network diagram view, critical path representation and for each activity related indentation and customize calendar for resources as per the consideration.



## Resource Sheet View

	Resource Name	Type	Material Label	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use	Accrue At	Base Calendar	Code
1	Ram	Work		R		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
2	mohan	Work		m		50%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
3	⚠ This resource should be leveled based on a Day by Day setting.			c			₹ 0.00		₹ 0.00	Prorated		
4				r			₹ 0.00		₹ 0.00	Prorated		
5	master tester	Work		m		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
6	sahib tester	Work		s		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
7	sonal coder	Work		s		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	

## Network Diagram View



	Resource Name	Type	Material Label	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use	Accrue At	Base Calendar	Code
1	Ram	Work		R		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
2	mohan	Work		m		50%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
3	computer	Material		c			₹ 0.00		₹ 0.00	Prorated		
4	router	Material		r			₹ 0.00		₹ 0.00	Prorated		
5	master tester	Work		m		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
6	sahib tester	Work		s		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
7	sonal coder	Work		s		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	

Resource Leveling

Leveling calculations

☐ Automatic
 ☒ Manual

Look for overallocations on a Day by Day basis

☒ Clear leveling values before leveling

Leveling range for 'sahib1 (3)'

☒ Level entire project
 ☐ Level
 

From: Thu 4/20/23

To: Tue 5/23/23

Resolving overallocations

Leveling order: Standard

☐ Level only within available slack  
☒ Leveling can adjust individual assignments on a task  
☒ Leveling can create splits in remaining work  
☐ Level resources with the proposed booking type

Help

Clear Leveling...

Level Now

OK

Cancel

Resource Name	Work	Details	S	S	Apr 17, '23	T	W	T	F	S	S	Apr 24, '23	T	W	T	F	S	S	May 1, '23	T	W	T
	check the ava	0 hrs																				
	cancel ticket	0 hrs																				
	Refund payme	0 hrs																				
	Create update	0 hrs																				
	settings mod	0 hrs																				
	Text railway r	0 hrs																				
	railway reserv	0 hrs																				
1	Ram	8 hrs																				
	Search Train	8 hrs																				
2	mohan	24 hrs																				
	verification pa	8 hrs																				
	Create chang	8 hrs																				
	Test settings	8 hrs																				
3	computer	0																				
4	router	0																				
5	master tester	32 hrs																				
	Create apply f	32 hrs																				
6	sahib tester	0 hrs																				
7	sonal coder	0 hrs																				

## Resolved

After resolving overallocation

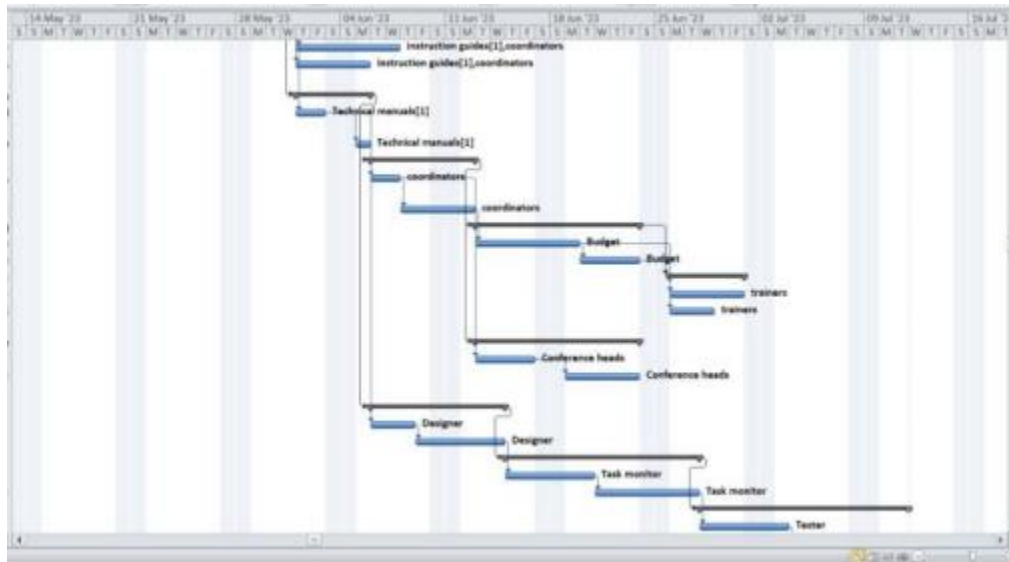
	Resource Name	Type	Material Label	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use	Accrue At	Base Calendar	Code
1	Ram	Work		R		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
2	mohan	Work		m		50%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
3	computer	Material		c			₹ 0.00		₹ 0.00	Prorated		
4	router	Material		r			₹ 0.00		₹ 0.00	Prorated		
5	master tester	Work		m		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
6	sahib tester	Work		s		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	
7	sonal coder	Work		s		100%	₹ 0.00/hr	₹ 0.00/hr	₹ 0.00	Prorated	Standard	

Q2) By taking 15 resources and activities represent overallocation and under allocation scenario in which critical path is also represented for traffic signal controller. resolve the overallocation and under allocation by any two techniques and mention it in the file.

Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Column
1 traffic signal controller	39 days	Thu 20-04-23	Tue 11-07-23			
2 Observe traffic patterns and identify congested areas	7 days	Thu 20-04-23	Fri 28-04-23			
4 Adjust signal timings	3 days	Thu 20-04-23	Mon 24-04-23		Sensor[1], coordinator	
5 respond to emergencies and incidents that affect traffic flow	4 days	Tue 25-04-23	Fri 28-04-23	4	coordinators, Sensor	
6 Maintaining equipment and systems	5 days	Mon 01-05-23	Fri 05-05-23	3		
7 Conduct routine maintenance on signal equipment	2 days	Mon 01-05-23	Tue 02-05-23	5	Maintenance and re	
8 repair or replace malfunctioning equipment	3 days	Wed 03-05-23	Fri 05-05-23	7	Maintenance and re	
9 Analyzing data and making improvements	5 days	Mon 01-05-23	Fri 05-05-23	3		
10 Collect and analyse traffic data	1 days	Mon 01-05-23	Wed 03-05-23	5	traffic signal contr	
11 Develop strategies to optimize traffic flow	2 days	Thu 04-05-23	Fri 05-05-23	10	traffic signal contr	
12 Communicating with public stakeholders	4 days	Mon 08-05-23	Thu 11-05-23	8		
13 respond to inquiries and complaints from public	2 days	Mon 08-05-23	Tue 09-05-23	11	Communication tool	
14 provide updates on traffic management initiatives	2 days	Wed 10-05-23	Thu 11-05-23	11	Communication tool	
15 Coordinating with other traffic management systems	11 days	Fri 12-05-23	Fri 26-05-23	12		
16 Integrate with other transportation management systems	6 days	Fri 12-05-23	Fri 19-05-23	14	coordinators	
17 Ensure seamless coordination with other traffic management systems	5 days	Mon 22-05-23	Fri 26-05-23	16	coordinators	
18 developing and implementing traffic management plans	3 days	Mon 29-05-23	Wed 31-05-23	12		
19 create plans to manage traffic during special events	3 days	Mon 29-05-23	Wed 31-05-23	17	Designer	
20 coordinate with other agencies and stakeholders for this	2 days	Mon 29-05-23	Tue 30-05-23	17	Designer	
21 Conducting safety assessments	5 days	Thu 01-06-23	Wed 07-06-23	18		
22 Evaluate the safety of intersections and signal systems	5 days	Thu 01-06-23	Wed 07-06-23	19	instruction guides[1]	
23 Implement safety improvements to reduce the risk of accidents	3 days	Thu 01-06-23	Mon 05-06-23	20	instruction guides[1], coordinato	
24 Maintain accurate records on documentation	3 days	Thu 01-06-23	Mon 05-06-23	18		
25 Maintain detailed records of equipment maintenance and repairs	2 days	Thu 01-06-23	Fri 02-06-23	19	Technical manuals[1]	

Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Column
16 Integrate with other transportation management systems	6 days	Fri 12-05-23	Fri 19-05-23	14	coordinators	
17 Ensure seamless coordination with other traffic management systems	5 days	Mon 22-05-23	Fri 26-05-23	16	coordinators	
18 developing and implementing traffic management plans	3 days	Mon 29-05-23	Wed 31-05-23	12		
19 create plans to manage traffic during special events	3 days	Mon 29-05-23	Wed 31-05-23	17	Designer	
20 coordinate with other agencies and stakeholders for this	2 days	Mon 29-05-23	Tue 30-05-23	17	Designer	
21 Conducting safety assessments	5 days	Thu 01-06-23	Wed 07-06-23	18		
22 Evaluate the safety of intersections and signal systems	5 days	Thu 01-06-23	Wed 07-06-23	19	instruction guides[1]	
23 Implement safety improvements to reduce the risk of accidents	3 days	Thu 01-06-23	Mon 05-06-23	20	instruction guides[1], coordinato	
24 Maintain accurate records on documentation	3 days	Thu 01-06-23	Mon 05-06-23	18		
25 Maintain detailed records of equipment maintenance and repairs	2 days	Thu 01-06-23	Fri 02-06-23	19	Technical manuals[1]	
26 Keep accurate records of traffic data and analysis	1 day	Mon 05-06-23	Mon 05-06-23	23	Technical manuals[1]	
27 Ensuring compliance with regulations and standards	5 days	Tue 06-06-23	Mon 12-06-23	24		
28 understand and comply with local, state and other regulations	2 days	Tue 06-06-23	Wed 07-06-23	25	coordinators	
29 Adhere to industry standards for signal equipment	3 days	Thu 08-06-23	Mon 12-06-23	28	coordinators	
30 Developing and managing budgets	8 days	Tue 13-06-23	Fri 23-06-23	27		
31 Develop and manage budgets for equipment maintenance	5 days	Tue 13-06-23	Mon 19-06-23	29	Budget	
32 Ensure efficient use of resources and cost effective strate	4 days	Tue 20-06-23	Fri 23-06-23	31	Budget	
33 Training and mentoring staff	5 days	Mon 26-06-23	Fri 30-06-23	30		
34 training new staff on principles and equipment maintain	5 days	Mon 26-06-23	Fri 30-06-23	31	trainers	
35 provide ongoing mentoring and professional development opportunities	3 days	Mon 26-06-23	Wed 28-06-23	31	trainers	
36 Staying up-to-date with industry trends and best practices	3 days	Tue 13-06-23	Fri 23-06-23	27		
37 Attend conferences and workshops	4 days	Tue 13-06-23	Fri 16-06-23	28	Conference heads	
38 participate in professional organizations and staying in touch with peers	5 days	Mon 19-06-23	Fri 23-06-23	37	Conference heads	

## Gant chart



Use level all resources or increase max.Units . With both of them this problem will be resolved. There are also other ways like increasing resources etc...

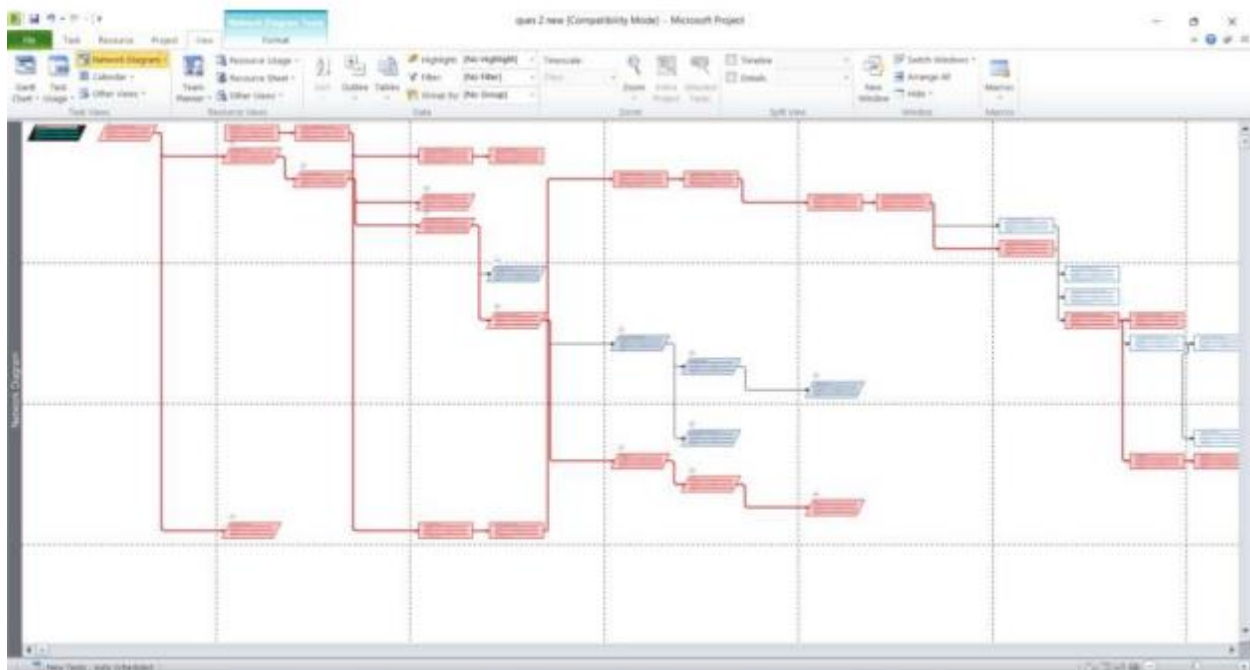
	Resource Name	Type	Material Label	Initials	Group	Max	Est. Sum	Out. Rate	End/Start	Assign At	Base Calendar	Code	Add New Column
1	Communication tools	Material	C				\$0.00		\$0.00	Prorated			
2	Technical manuals	Material	T				\$0.00		\$0.00	Start			
3	trainers	Work	T			100%	\$0.00/hr	\$0.00/hr	\$0.00	Start	Standard		
4	Budget	Cost	B							Prorated			
5	Conference heads	Work	C			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		
6	Maintenance and repair materials	Material	M				\$0.00		\$0.00	End			
7	traffic signal controllers	Material	T				\$0.00		\$0.00	Prorated			
8	instruction guides	Material	I				\$0.00		\$0.00	Start			
9	coordinators	Work	C			100%	\$0.00/hr	\$0.00/hr	\$0.00	Start	Standard		
10	traffic flow materials	Material	T				\$0.00		\$0.00	Start			
11	training materials	Material	T				\$0.00		\$0.00	Start			
12	Tester	Work	T			100%	\$0.00/hr	\$0.00/hr	\$0.00	End	Standard		
13	Designer	Work	D			100%	\$0.00/hr	\$0.00/hr	\$0.00	Start	Standard		
14	Task monitor	Work	T			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		
15	Sensors	Material	S				\$0.00		\$0.00	Prorated			

Leveling with increasing max.units:

Resource Name	Type	Material Label	Initials	Group	Alloc	Not Alloc	Not Rate	Cost/Unit	Alloc At	Base Calendar	Code	Add New Column
Communication tools	Material	C					\$0.00		\$0.00	Prorated		
Technical manuals	Material	T					\$0.00		\$0.00	Start		
Trainers	Work	T			200%		\$0.00/hr	\$0.00/hr	\$0.00	Start	Standard	
Budget	Cost	B								Prorated		
Conference heads	Work	C			100%		\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	
Maintenance and repair materials	Material	M					\$0.00		\$0.00	End		
traffic signal controllers	Material	T					\$0.00		\$0.00	Prorated		
instruction guides	Material	I					\$0.00		\$0.00	Start		
coordinators	Work	C			200%		\$0.00/hr	\$0.00/hr	\$0.00	Start	Standard	
traffic flow materials	Material	T					\$0.00		\$0.00	Start		
training materials	Material	T					\$0.00		\$0.00	Start		
Tester	Work	T			100%		\$0.00/hr	\$0.00/hr	\$0.00	End	Standard	
Designer	Work	D			200%		\$0.00/hr	\$0.00/hr	\$0.00	Start	Standard	
Task monitor	Work	T			100%		\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	
Sensors	Material	S					\$0.00		\$0.00	Prorated		

## Network diagram

All the red part represent critical path



Resources Underallocation:

Opposite to overallocation is Resources Underallocation

- the available capacity of resources are not allocated properly

Ways to resolve them:

1. Add more task duration
2. Reduce number of resources and use them as per need